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OF THE HOTWELL WATERS, NEAR BRISTOL:

BY

JOHN NOTT, M. D.

of Bristol

O liquidi criſtalli, onde s'eſtingua
L'ardente ſete a' miſeri mortali!

TASSO, Del mondo creato. GIORN. 3. STANZ. 18.

BRISTOL:
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1793.

BRITISH MUSEUM

ADVERTISEMENT.

TO give a more clear and conciſe account of the Hotwell Spring, by collecting much ſcattered information, and by communicating the reſult of ſome experience, this little treatiſe was compiled for the uſe of its various viſitants.

BRISTOL HOTWELLS.

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ERRATA.

Page 72. Line 5. of the Note, for *Lal* read *Lac.*

Page 85. Line 7. for *-ons* read *-tions.*

OF THE
HOTWELL WATERS.

WATER IN GENERAL.

IT is not my deſign to enter into much preliminary diſcuſſion reſpecting water in general. Whether it be a primitive element, or otherwiſe, is an inquiry I ſhall wave; only remarking, how greatly the pride of philoſophy muſt be humbled, when it reflects on the mutability of its boaſted laws. What the ſages of old, particularly Thales the Mileſian, acknowledged as the firſt principle of things, the "mother of matter," is conſidered by modern ſages as the mere ſubſtantiated form, produced by exploſion, of two combined airs, the vital, and inflammable.

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It is ſcarce poſſible to conceive the exiſtence of a truly homogeneous water. That of rivers and fountains partakes of the ſoil and matter amidſt which it flows, or is detained. Rain water abounds with the corpuſcules floating in the atmoſphere it paſſes through. Snow water is perhaps of all others the pureſt. The choice of water then, to which the ancients paid ſuch ſtrict attention, is highly deſerving the phyſician's care: health, and longevity depend upon it.

The greater the purity of water, the more readily it pervades different ſubſtances; and the ſooner it is heated, cooled, or even frozen; the ſofter it is to the touch and taſte; the more reſonant when poured forth; and the leſs is its ſpecific gravity. Were water perfectly pure, it would be colourleſs, taſteleſs, and inodorous.

Water is to be conſidered as the great vehicle of nurture to all productions of the animal, and vegetable kingdoms; the foſſil kingdom too could not have birth without it. Below 30° of Fahrenheit's heit's thermometer water is ſolid, above that degree fluid, and at 112° it boils. It is uninflammable. Its weight is 850 times that of air, in which it is very readily ſoluble. Nothing is more ſubtile, except fire. It is a more powerful ſolvent than we are generally aware of; we know that ſilex is often detected on decompoſing it. And it has hitherto been found incompreſſible.

Waters not eſteemed mineral have cuſtomarily been divided into hard, and ſoft. The fact is; waters are hard from ſome ſlight mineral impregnation, which either boiling, or expoſure to the air decompoſes; and they then become ſoft.

Nor ſhall I enter into any particular examination of medicinal mineral waters; their analyſis has been ſatisfactorily treated upon by that laborious, and enlightened chymiſt, Sir Tobern Bergman, whoſe experiments, and opinions are well known.

MINERAL WATERS.

Most mineral waters are wholeſome and medicinal, adapted to various chronic dieſeaſes: they ſeem gifted by heaven with healing powers, and pointed out by nature as remedies of eaſy acceſs to man.

A few mineral ſprings are indeed inimical to health, and even poiſonous, though but a few. The proportion of warm mineral waters to cold ones is very ſmall. It is peculiar to mineral ſprings, that they are in general unceaſing: they are ſeldom dried up, but flow the ſame at all ſeaſons, unchanged in their quantities, or qualities. I know that many waters are ſaid to have more exalted virtues in ſummer; but this is problematical.

Mineral waters have by ſome been conſidered, and not improperly, as conſiſting of three diſtinct principles: 1. The pure elementary menſtruum. 2. The matter, of whatever various nature it may be, combined with it. 3. The combining gas.

The *firſt* has been ſpoken to.

The *ſecond* conſiſts of the following, viz. Metalline ſubſtances, which are confined to iron, and copper of the perfect metals: the latter is found rarely, and then only in combination with vitriolic acid: of the ſemi-metals, zinc and mangane ſe are evident; arſenic is ſuppoſed to have been detected. Acids and alkalies, which are ſaid to have been found, in a diſengaged ſtate, but generally in union with each other, forming neutral ſalts; and ſeparately with earths, forming numerous compounds: aerial acid indeed, which we are no longer to conſider as air, is found diſengaged in waters. Earths perhaps of more kinds than we are aware of: the calcareous is the moſt common, then the magneſious, next the argillaceous, leaſt of all is the quartzoſe: terra ponderoſa has alſo been found. Sulphur in the form of hepatic gas, and in combination with alkali forming a hepar.

Foſſil oils pure, and in combination, particularly with alkali under a ſaponaceous form. I cannot diſmiſs this ſubject, without obſerving on that cloud of error which the light of chemiſtry has pierced. The ancients ſuppoſed the ſaline matter of waters to be a pure acid; even ſome of our more early moderns have called it invariably an alkali.

The *third* principle I know not whether it may be perfectly conſiſtent with the doctrines of modern chemiſtry to admit. That it exiſts I doubt not, though it be too ſubtile for experiment to detect. It is that gas which conſtitutes the difference between conſtitutional and factitious combination, between the chemiſtry of nature and of art. It gives to mineral waters energy and efficacy; for, trivial as their contents on analyſis may ſeem, influenced by this principle, they become important and active. Were it otherwiſe, we might ſucceſsfully imitate any water, and aſcertain its preciſe degree of power by the proportion of its contents. How ſenſible an effect will a pint of many aperient mineral waters produce; yet how inactive will be the contents chemically derived from four pints of the ſame water, and rediſſolved in one pint of common water: the influence of a peculiar combining principle can alone account for this; and it may be, that ſome fugitive quality, or matter of medicinal efficacy, is alſo held in ſuſpenſion by this ſame medium, which never chemiſt yet had knowledge of. Hence it is apparent, that every mineral water ſhould be drunk at the ſpring, inſtantly as it is drawn; the ſlighter the impregnation, the greater the neceſſity for this; particularly in calcareous and ſaline waters, whoſe component parts are more immediately kept in ſolution by an aerial menſtruum.

And here let me expreſs a regret, that the mineral waters of this kingdom are not under the ſame royal patronage as thoſe of France formerly were. An inſpector general was appointed, who analyzed and frequently examined the ſtate of the different public mineral ſprings; endeavouring alſo to diſcover, if poſſible, new ſources.

HISTORY OF THE HOTWELL SPRING.

THE diſcovery, and remote hiſtory of the Hotwell ſpring is involved in much obſcurity. It riſes with force, and perpendicularly, out of the rock on the eaſtern bank of the Avon, 10 feet above low water, and 26 below high water mark, diſcharging about 40 gallons in a minute. Mention is made of it, in a mixt language of corrupt latin and french, by William of Worceſter, in 1480, as iſſuing out of Ghyſton cliff, in the ſhole place; alſo of the hermitage, and chapel, the dimenſions of which are ſpecified, dedicated to St. Vincent, a ſpaniard martyred at Valencia, A. D. 305. theſe, he ſays, were ſituate mid way on the rock, which was forty fathom from the ſummit to the main ground below: from the chapel and hermitage to the low water mark was likewiſe forty fathom; conſequently, from the ſummit of St. Vincent's rock to the low water mark muſt be ſixty fathom. The ſame writer alſo ſpeaks of the clear ſpring on the oppoſite ſhore in the pariſh of Lye, under the name of Scarlette Welle. What is now called Giant's hole, in St. Vincent's rock, he deſcribes, under the name of Fox's hole, as of moſt tremendous acceſs, which in fact it is.

THE earlieſt traditional account we have of the ſpring is, that about 160 years ago it was eſteemed a ſpecific for the itch and old ulcers, by ſailors, who frequently ſtopped at the native ſource, when the tide was low, to bathe there.

TILL its preſent incloſure, it was ſaid to be contained within a brick ciſtern, the date of whoſe fabrication is not upon record, 13 feet by 2 ſquare, and 4 feet deep, unpaved at bottom. A wooden pipe 4 feet in length, and 14 inches in the bore, conveyed the water from the ſouthern ſide of the ciſtern into a pond 8 feet ſquare. In this baſon, and under this pipe, people waſhed their ſores.

Its internal uſe was at firſt confined principally to nephritic complaints, being eſteemed in the beginning of the laſt century an excellent diuretic. In 1650, it had probably no eſteem in phthiſis; for Dr. Bennet of Briſtol, in his *Theatrum Tabidorum* of that date, does not even mention it. But in 1680, its higher medical reputation, which has been permanent, was eſtabliſhed, by curing of a diabetes Mr. Gugg a baker in Briſtol, to whom the remedy, according to report, was pointed out in a dream. This circumſtance was communicated to the late Dr. Randolph by Mr. Oneſiphorous Tyndal, who came to Briſtol, in 1674, when the water was only uſed externally for the itch, and internally for the ſtone and gravel. Dr. Etwall, a phyſician reſiding at Briſtol, in 1688, confirmed this ſtory to Dr. Randolph; although, during his day, its merits in the cure of diabetes, or other diſorders, had not then rendered the Wells a place of public reſort.

In 1691, Sir John Knight, mayor of Briſtol, injudiciouſly incloſed the ſpring with a wall of ſuch an elevation as might exclude it from the higheſt tide. A column of confined water ſo great, had, by its preſſure, nearly forced the ſpring to find an exit through ſome new channel; and it was almoſt loſt: but, four years after, the merchants' company, on whoſe eſtate the water riſes, granted a leaſe of it at 4l. per annum to Jones, Callowhill, and others. They recovered the ſource, more effectually incloſed it, and put down pumps which now raiſe the water 30 feet into the preſent pump-room. Still this incloſure is deficient, and many attempts have been vainly made to remedy the evil. For, at the ſpring tides, through ſome defect in the ſtructure, or by reaſon of ſome fiſſure, the tide will at its height come in, and contaminate the ſpring, which is only cleared by the ſubſidence of the tide, and by pumping; ſo that every fortnight, for a certain portion of the day, the pure Hotwell water is not to be procured.

These incloſures however, of ſuch ſeeming utility at firſt view, have, in my opinion, diſadvantageouſly influenced, and indeed defeated one of the original medicinal purpoſes of the Hot ſpring. Its external uſe ceaſes; and its benefits as a bath are no longer conſidered, which they formerly were, and perhaps with reaſon. About three years ſince a bath of the Hotwell water was attempted; but unfortunately the contracted plan on which it was undertaken, rendered it unequal to anſwer any good medicinal end. It is ſingular, and it is to be regretted, that neither the Hotwells, nor even the large and opulent city of Briſtol, have any eſtabliſhment of baths. Every medical perſon, in the courſe of his practice, muſt have frequently felt the want of them.

HISTORIANS OF THE HOTWELL SPRING.

The hiſtory of the Hotwell waters naturally leads us to the mention of thoſe who have treated on them. Inaccuracy and error ſeem to have guided the pens of their earlieſt writers. We will enumerate them.

DR. EDWARD JORDEN,

Of Bath, in his treatiſe on mineral waters, 1632, briefly notices them, as ranking with the chalybeate waters of Spa, and Tunbridge.

THOMAS JOHNSON

Mentions his having viſited the ſpring in 1634, which was good, he ſays, for external ſores, ulcers in the kidneys, and calculous complaints. See his *Mercurius Botanicus.*

DR.

DR. VENNER

In his third edition only of *Via recta ad Vitam longam*, 1650, tells us: that, beſides their general uſe in ſtone, theſe waters cured ulcers of the urinary paſſages, and inteſtines (provided they paſſed readily) hot livers, inflamed viſcera in general, and aduſt humours. He warns the cold and phlegmatic againſt uſing them. He gave them either with ſugar, honey, tincture of violets and roſes, or cream of tartar. From a dark ſtool one of his patients voided, he attributed iron to them, alſo ſulphur, and nitre. Their outward uſe he diſregarded.

DR. MAPLET

Writing to Dr. Bate, 1655, ſpeaks of a cancerous caſe cured by the external, and free internal uſe of the water of Briſtol, where he reſided. In another letter to the Rev. Dr. Creighton, 1668, and in one to Dr. Wall, he extols them in nephritic complaints, drunk largely on an empty ſtomach.

FULLER.

His Book of Worthies, 1662, relates that: "St. "Vincent's well is ſovereign for ſores and ſickneſſes, outwardly and inwardly applied. It "has a ferruginous taſte; and beer brewed there"with is wholeſome againſt the ſpleen." Dr. Samuel Ward, of Cambridge, we find, ſo drank it for the ſpleen at great coſt, being conveyed, through the Severn and narrow ſeas, up the river to that town.

CLERMONTIUS

De Aere, Aquis, et Locis Angliæ, 1672, eſteems the waters good for obſtructed bowels, and the gravel; yet in himſelf they cauſed vomiting, which, unleſs they prove diuretic, they will do, ſays he, and gripe, or occaſion ruptures.

THOMAS GUIDOT

Batchelor of phyſic, practiſing in Bath, at the end of his diſcourſe on Bathe, and the Hot waters there, 1676, ſubjoins ſome inquiries on the water of St. Vincent's rock. He ſuppoſes it a continuation of the Bath water thither. One hogſhead evaporated produced five ounces and a half of reſiduum, a fifth of which, he ſays, was ſaline matter, containing ſo much more iron than the Bath water, which is in a greater degree ſaline. It has, in many diſeaſes, the advantage, and may be as effectual as Tunbridge water. In his epiſtle dedicatory he tells us; that the principles formerly were accounted ſulphur, copper, iron, and a little marcaſite.

The ſame Guidot, I fancy, in his work: *De Thermis Britannicis*, 1690, retails the doctrines of Venner, and Maplet on this water. He alſo declares it good in all flatulencies, particularly the *flatus hypocondriacus*, which perhaps he miſtakenly deduces from what Fuller had ſaid about the ſpleen,

ſpleen. He firſt recommended it in diarrhæas, and adviſed bathing in it for the cure of diabetes.

SIR ROBERT ATKYNS

In his *Account, and preſent State of Glouceſterſhire*, 1712, ſays: "This ſpring is a remedy famous for "divers diſeaſes, eſpecially the diabetes."

Camden's Britannia, although it ſpeaks of the Briſtol diamonds, makes no mention of the water in any edition till that of 1789, which is the laſt.

MR. JOHN UNDERHILL,

Who practiſed medicine at Briſtol, from a collection of cures formerly kept at the Well-houſe, makes the water a ſpecific for almoſt every diſeaſe, externally as well as internally uſed; even king's-evil, and cancer were cured by it. He is the firſt perhaps who recommended it for ſterility, and impotency. See the *Thermalogia Johannis Subtermontani*, as he ſtyles himſelf, 1703.

DR. WYNTER

To oblige Dr. Friend with a compariſon between the Bath and Briſtol waters, wrote, during a four weeks' voyage from Jamaica, his *Cyclus metaſyncriticus*, 1725. There is found a hiſtory of the numerous virtues of Briſtol water; the moſt novel is that of curing dropſies. In the modern language of medicine, the Dr. conſiders Bath water as a ſtimulant, Briſtol water as a ſedative.

DR. MEAD

Cannot perhaps be conſidered as a writer on the Briſtol water; yet he has greatly enhanced its reputation, by his recommendation of it in diabetes. He juſtly conſiders it as a light lime-water.

DR. KEIR

Though his doctrines and opinions, medically and chemically conſidered, are now ſomewhat obſolete, has treated the ſubject of our water with much method and perſpicuity. Upon the whole, I conſider his treatiſe as the beſt yet written concerning it. It came out 1739.

MR. SHEBBEARE

UNPARDONABLY as a chemiſt, deduces all he would prove from analagous experiments; on the ſuppoſitious principle of alum and lime-water curing diabetes. His *Analyſis* came out 1740.

DR. RANDOLPH

FIRST publiſhed his book 1745. He enters but little into the hiſtory, and no way into the chemiſtry of the Briſtol water. He chiefly treats on the diſeaſes to which he conſiders it applicable; theſe are: Hectic fever, Hæmorrhage, Dyſentery, Uterine bleedings, Hectic from increaſed circulation, Scurvy, Hectic from ulcer, Diabetes, Gleets, and Phthiſis pulmonaria. He republiſhed his work in 1750, with the chemical part added, which however contains no experiments of his own.

DR. SUTHERLAND,

Of Bath, is the laſt writer on this water. His treatiſe, which appeared 1758, has been recently reprinted. Could I have beſtowed praiſe upon it, I might have ſpared myſelf the trouble of compiling the preſent. His book abounds with caſes, which, in my opinion, ſtamp no credit on a medical performance, the uſe of them being ſo generally abuſed. He ſeems the profeſſed antagoniſt of Randolph.

DR. FOTHERGILL

Ought poſſibly to be ranked among the writers on Briſtol water. Simplicity, candour, and ſound ſenſe characterize the few pages concerning them which he inſerted in the 5th Vol. of *Medical Obſervations and Inquiries*. They conſtitute an elegant, compendious, and, I had nearly ſaid, a perfect treatiſe.

NATURAL HISTORY OF THE SITE.

The nature of the rock out of which St. Vincent's ſpring iſſues, and the circumjacent ſoil, cannot but intereſt us. The rock in general is a limeſtone, whoſe colours are beautifully varied; a duſky red, yellow, and grey are the prevailing. In parts it is ſo hard as to deſerve the name of marble, bearing a very high poliſh, and being applied to ornamental purpoſes; a brown kind veined with red is the moſt eſteemed: ſome of the darker veins, ſtruck with iron, emit a fox-like fetor. No calcareous earth makes better lime. The ſtrata in general decline ſouth: in their fiſſures are found ſparry and calcareous cryſtals, particularly thoſe ſo well known by the name of Briſtol diamonds: they are found alſo in nodules amidſt the neighbouring fields: they are often colourleſs;

often of a browniſh red, purple, or yellow. Marine exuviæ, and foſſil corals are likewiſe numerous. But, to gratify the mineralogiſt, a liſt of the moſt material foſſils hitherto got on the ſpot, and in that vicinity of Briſtol, ſhall be preſently exhibited.

Nor are the bowels of the earth here deficient in metalline productions: iron, and lead are found; ſo is zinc in its ore of calamine, of which there are many works at no great diſtance.

The earth that chiefly abounds is ochreous, of a various red and yellow: but the ſoil which covers the ſummits of theſe rocks, extending over fine downs on either ſide the river, is a rich black mould, ſpread with a dry turf, bearing heath and odoriferous herbs in abundance. About St. Vincent's rock grow a variety of curious plants that are peculiar to the ſpot. A more correct liſt of them, in my opinion, cannot be formed than what the ingenious Dr. Broughton, late of Briſtol, made out, which Shiercliff's Hotwell Guide has copied.

I will give it a place after the Foſſil liſt, for the ſake of my botanical readers.

To the luxuriant herbaceous productions of meadows and gardens, in the vicinity of the Wells, which are numerous and highly cultivated, as alſo to the neighbouring lime-kilns, Dr. Keir has wrongfully attributed the wholeſomeneſs of our air: and he adopts the vulgar opinion, that aromatic plants give ſweetneſs to the milk of animals. We know that their oil is too cauſtic, to allow them to be food for brutes; but the ſhort blades, that ſpring on the ſoil theſe plants inhabit, form the ſweeteſt paſturage poſſible.

Certain it is, that air, which blows over tracts of vegetation, is warmer and more ſalubrious, than what blows over uncultivated or unproductive ſoils; whether it be, that it is impregnated with a peculiar matter which vegetables are ſaid to perſpire, and which is friendly to the lungs of all animals, but chiefly of man; or whether it be, that it is wholeſome from imbibing, according to more modern doctrines, an oxygenous principle which vegetables readily impart, and ſo vivifying our reſpiration in a higher degree; this I am not competent to decide on. I know from experience, that a ſituation among the pine-clad mountains of the ſouth of France, as that of Hieres, is far preferable for our emigrating invalids, to their more ſouthern reſorts of Nice, Piſa, and Naples, where both mountain and plain are always leſs cloathed, and oftentimes bleak and barren.

But a ſurvey of the country, and a little reflection will unfold the ſecret of ſalubrity in the air about St. Vincent's rock, and point out in what it conſiſts. South weſt of the river, from the height of its wooded ſide, forming the edge of Leigh down, extends the rich tract of Clevedon down for about ſixteen miles, till you come to Walton upon the Severn coaſt, which river has there all the properties of ſea; yet our mariners do not admit the appellation of Severn-ſea, till you reach Cardiff. It is eaſy to conceive, how the ſea breezes coming to us over the high land of Clevedon down, and blending with its air, muſt influence the atmoſphere of St. Vincent's rock; not to mention the portion of ſea air that comes to us each tide by the channel of the Avon from Kingroad. The fact then is; we here breath a light ſea air tempered with a ſoft dry mountain air. What can we conceive more mildly tonic, and more ſalubrious?

LIST OF FOSSILS FOUND UPON, AND IN THE VICINITY OF ST. VINCENT'S ROCK.

St. Vincent's rock contains

Calcareous Earth,

Combined with Aerial acid.

Solid fine-grained Limeſtone.

Black compact Limeſtone.

Calcareous Spar of a rhomboidal figure, and diaphanous.

Foliated Spar.

Pyramidals.

Dogs' teeth. Several varieties.

Stalactitical Spar; ſolid, and hollow in the form of a cone.

Many of the Limeſtones on colliſion ſmell like Lapis ſuillus.

Imbedded in the Limeſtone are found many organic bodies, ſuch as Univalves, Bivalves; alſo Madrepores, Millepores, Aſtroites, and a great variety of the Coral claſs, many of which are peculiar; being found, in their native ſtate, only in the Eaſt Indies.

Kitton-ſtone or Hammites is likewiſe abundant in the Limeſtone.

QUARTZ,

Conſtituting a part of St. Vincent's rock, is found

Solid, frequently imbedded in limeſtone indurated by iron.

Cryſtalized, chiefly in hexagonal cryſtals with frequent ſhoots of iron.

In the form of Nodules.

As a Jaſper, red and yellow; of which both a coarſe, and a fine-grained ſort are found upon, and in St. Vincent's rock.

IRON

Is found in great abundance in the form of

A brown Calx, which is partly phlogiſticated, and magnetic.

Red Calx, more dephlogiſticated.

Stalactitical.

Cryſtalized.

Hæmatites.

Magnet.

Black iron Ore, with very little Sulphur.

LEAD, AND LAPIS CALAMINARIS,

They are ſometimes found on St. Vincent's rock, and on Durdham down.

LEIGH-DOWN contains moſt of the foſſils found about St. Vincent's rocks.

KINGSWESTON produces large nodules of Quartz cryſtals, in ſome are found the rhombic calcareous Spar, and in others Gypſum with Quartz cryſtals imbedded.

AT SHIREHAMPTON are found in the gravel-pits many organic bodies, as Cornu ammonis, Vertebræ, Horns of unknown animals, &c.

AUST-PASSAGE affords an abundance of Calcareous earth combined with Vitriolic acid. A great deal of Iron mineraliſed with Sulphur and Arſenic, and a variety of organic foſſils.

COTHAM-HILL contains many large Bivalves natives of the Eaſt Indies, and Pacific Ocean, ~~as~~ also the Cornu ammonis, &c. The Cotham Marble is in the form of Stalactite; it is a Marle indurated by Iron, which produces its landſcape.

LIST OF PLANTS FOUND IN THE VICINITY OF ST. VINCENT'S ROCK.

ÆGILOPS (now **ROTTBOELIA INCURVRTA**;) *Sea Hard-graſs.* By the river ſide. June to Auguſt. Hiſt. Oxon. viii. 2. 8.

ALOPECURUS PANICEUS. *Bearded Fox-tail graſs.* St. Vincent's rock, June to Auguſt. Schreb. 20. 3.

ANETHUM FŒNICULUM. *Fennel.* St. Vincent's rock. July and Auguſt. Sheldrake. 15.

ANTIRRHINUM CYMBALARIA. *Ivy-leaved Toad-flax.* Walls about Clifton. June to September. Fl. Londinens. 1. 10.

Antirrhinum, minus. *Leaſt Toad-flax.* St. Vincent's rocks. June to September. Fl. Londinens. v. 50.

Aquilegia vulgaris. *Columbine,* St. Vincent's rocks. June. Fl. Dan. 695.

Arabis stricta. *Upright Arabis, or rough Wall-creſſe.* The rocks on the Leigh ſide of the river. March to May.

Arenaria rubra. *Purple flowered Chick-weed, Sandwort, or ſea Spurry.* By the river ſide. June to Auguſt. Fl. Dan. 740.

Arenaria tenuifolia. *Fine-leav'd Chick-weed, or Sandwort.* Foot of St. Vincent's rock. June, and July. Fl. Dan. 389.

Asparagus officinalis. *Common Sparagus.* Meadow below Cook's Folly. July, and Auguſt. Fl. Dan. 805.

Asplenium ceterach. *Spleenwort.* Common on walls. May to September. Bolton's Filices. Tab. 12.

ASPLENIUM RUTA MURARIA. *White Spleenwort, or Maidenhair.* Common on walls. June to September. Fl. Dan. 190.

BRYUM EXTINCTORIUM. *Extinguiſher*, or *conic Bryum.* Various places on St. Vincent's rocks. Oct. to Aug. following. Dillen: Hiſt. Muſc. t. 45. fig. 8.

BRYUM POMIFORME. *Apple Bryum.* On the rocks in Leigh wood, rare. March, and April. Dillen: Hiſt. Muſc. t. 44. fig. 1.

BULPEURUM TENUISSIMUM. *Leaſt Thoroughwax, or Hare's ear.* In the meadows below Cook's-Folly. July, and Aug. Hiſt. Oxon. ix. 12. 4.

CARDUUS ACAULIS. *Dwarf Thiſtle.* St. Vincent's rock. July. Clus. 5th. book, page 156. fig. 1.

CARDUUS ERIOPHORUS. *Woolly-headed Thiſtle* St. Vincent's rock. July, Clus. 5th. 154.

CHENOPODIUM MARITIMUM. *Sea Gooſefoot.* By the river ſide. Auguſt. Fl. Dan. 489.

CHLORA PERFOLIATA. *Perfoliate Yellow-wort.* St. Vincent's rocks, and Leigh-wood. July. Engliſh Botany. pl. 60.

COCHLEARIA ANGLICA. *Sea Scurvy-graſs.* By the river ſide. May. Fl. Dan. 329.

COTYLEDON UMBILICUS VENERIS. *Navel-wort, or. wall Pennywort.* St. Vincent's rock, and walls about Briſtol, very common. June to Auguſt. Clus. L. 4. 63. 1.

DIGITALIS PURPUREA. *Purple Fox-glove.* Leigh-wood, and near Cook's-Folly. July. Fl. Londinens. i. 2.

ERIGERON ACRE. *Blue Erigeron, or blue Flea-bane.* St. Vincent's rock. July, and Auguſt. Fl. Londinens. i. 5.

EUPHORBIA EXIGUA. *Dwarf Spurge.* At the foot of St. Vincent's rock. July. Fl. Londinens. iv. 41.

GALEOPSIS LADANUM. *Red Dead-Nettle, or Nettle-hemp.* St. Vincent's rock. June to Auguſt. Rivin. Mon. 24.

GALIUM MONTANUM (Hudſon) *Mountain Ladies-bedſtraw.* St. Vincent's rock, near Clifton turnpike. July, and Auguſt.

GERANIUM MARITIMUM. *Sea Crane's-bill.* By the river ſide. June, and July.

GERANIUM SANGUINEUM. *Bloody Crane's-bill.* St. Vincent's rock, common. July, and Auguſt. Walcot. Fl. Brit. indig.

GLAUX MARITIMA. *Sea Milkwort, or black Saltwort.* By the river ſide. June, and July. Engliſh Botany. pl. 13.

Hippocrepis comosa. *Tufted horſe-ſhoe Vetch.* Near Giant's-hole. July. Engliſh Botany, pl. 31.

Hypericum humifusum. *Trailing St. John's-wort.* Clifton turnpike. July. Flor. Londin. iii. 28.

Hypericum montanum. *Mountain St. John's-wort.* Clifton turnpike. July. Fl. Dan. 173.

Hypericum pulchrum. *Elegant, or upright St. John's-wort.* St. Vincent's rock, below Clifton Turnpike. July. Flor. Londinens. i. i.

Hypnum crispum. *Curled Hypnum.* St. Vincent's rock. March. Dillen. t. 36. fig. 12.

Gentiana amarella. *Autumnal Gentian, or Feltwort.* Leigh-wood. July, and Auguſt. Fl. Dan. t. 328.

Lathræa squammaria. *Toothwort.* Leigh-wood. April, and May. Engliſh Botany, pl. 50.

Lepidium petræum. *Mountain Pepper-wort.* Various places on St. Vincent's rocks. April, and May. Jacq. Auſt. t. 131.

Lepidium ruderale. *Narrow-leaved Pepper-wort, or Dittander.* At the foot of St. Vincent's rocks. June, and July.

Lichen deustus. *Sooty Lichen.* The further end of St. Vincent's rocks. All the year. Dillen. t. 29. fig. 117.

Lichen miniatus. *Cloudy Lichen.* With the above. All the year. Dillen. t. 30. fig. 127.

Lichen pollyrhizus. *Duſky rock, or ſinged Lichen.* With the above. All the year. Dillen. t. 30. fig. 129.

Lithospermum officinale. *Common Gromwell.* May, and June.

Milium lendigerum. *Pink fox-tail Graſs.* Near the New Hotwell. July, and Auguſt. Schreber. t. 23. fig. 3.

Monotropa hypopithis. *Primroſe-ſcented Hypopithis, yellow Monotropa, or Bird's-neſt.* In Leigh-wood. July. Eng. Botany, pl. 69.

Ophrys apifera. *Bee Ophrys.* St. Vincent's rock, behind the New Hotwell. July, and Auguſt. Fl. Londinens. i. 3.

Ophrys muscifera. *Fly Ophrys.* With the former. July, and Auguſt. Engliſh Botany, pl. 64.

Ophrys ovata. *Common Ophrys, or Twayblade.* Leigh-wood. May, and June. Fl. Londinens. iii. 30.

Ophrys spiralis. *Triple Ophrys, or Ladies' traces.* St. Vincent's rock, above the Hotwell-houſe. July, and Aug. Fl. Lond. iv. 46.

ORCHIS BIFOLIA. *Butterfly Orchis.* Leigh-wood. May to June. Engliſh Botany, pl. 22.

ORNITHOPUS PERPUSILLUS. *Birds-foot.* Brandon-hill. near Clifton. Auguſt. Fl. Londinens.

OSMUNDA SPICANS. *Spleen-wort, or Oſmund royal.* Below the Hotwell, and in Leigh-wood. Auguſt. Bolton's Filices. tab. 6.

PEUCEDANUM SILAUS. *Meadow Saxifrage.* Leigh-wood ſide of the river. Auguſt. Flor. Auſtriaca. t. 15.

PICRIS ECHIOIDES. *Ox's-tongue, or rough Picris.* Below Cook's Folly. July, and Auguſt. Flor. Londinens. iii. 25.

PICRIS HIERACIOIDES. *Yellow Picris, or Succory.* Below Cook's Folly. July, and Auguſt.

PIMPINELLA DIOICA. *Leaſt Pimpernell, or Burnet Saxifrage.* On St. Vincent's rock, behind the Hotwell-houſe. May, and June. Flor. Auſtriaca. t. 28.

Polypodium dryopteris. *Branched Polypody.* In Leigh-wood, rare. June to September. Bolton's Filices, tab. 28.

Polypodium fragile. *Brittle Polypody.* In Leighwood with the former, rare. June to September. Bolton's Filices, tab. 27.

Prenanthes muralis. *Wall Lettuce, Ivy-leaved wild Lettuce, or Wall Prenanthes.* Leigh-wood. July. Flor. Londinens. v. 52.

Poterium sanguisorba. *Common Burnet.* St. Vincent's rock. July. Flor. Londinens. ii. 15.

Potentilla verna. *Spring Cinquefoil.* St. Vincent's rock. May, and June. Engliſh Botany, pl. 37.

Rubia peregrina. *Wild Madder.* St. Vincent's rock, and Leigh-wood. June, and July.

Salicornia herbacea. *Marſh-Samphire, jointed Glaſs-wort, or Salt-wort.* On the banks of the river. Auguſt, and September. Flor. Danic. t. 303.

Scabiosa columbaria. *Small Scabious.* St. Vincent's rock. June, and July. Walcot. Fl. Brit. indig.

Scilla autumnalis. *Autumnal Squill, or Star-hyacinth.* Near the Limekiln, on Clifton-hill. Auguſt, and September. Cluſius, p. 181.

Sedum dasyphyllum. *Round-leaved Stone-crop.* St. Vincent's rock, in the road to Giant's hole. July. Flor. Londinens. iii. 25.

Sedum rupestre. *St. Vincent's-rock Stone-crop.* In the road to Giant's-hole. Auguſt.

Sisymbrium murale, Linnæi; **Brassica muralis**, Hudſoni. *Wall-Cabbage, or Wild Rocket.* Various places. May to September. Fl. Londinens. iii. 27.

Smyrnium olusatrum. *Alexanders.* near Giant's-hole. May, and June.

Solidago virgaurea. *Golden-rod.* St. Vincent's rock. Auguſt. Fl. Dan. 663.

Trifolium ornithopoides. *Bird's-foot Trefoil.* St. Vincent's rock. June, and July. Fl. Londinens. ii. 21.

Trifolium subterraneum. *Dwarf Trefoil.* St. Vincent's rock. May. Fl. Londinens. ii. 22.

Turritis hirsuta. *Hairy, or Rough tower Muſtard.* Wall behind the Hotwell-houſe. June. Jacquin, Plant. rariores.

VERONICA SPICATA. *Spiked Speedwell.* In the way to Giant's-hole. June to Auguſt. Engliſh Botany, pl. 2.

VIOLA HIRTA. *Hairy Violet.* St. Vincent's rock, near the turnpike. March, and April. Fl. Londinens. i. 10.

ULVA LACTUCA. *Lettuce Laver, or Oyſter Green.* On the banks of the river. September to May following. Dillen: t. 8. fig. 1.

APPARENT, AND CHEMICAL CHARACTERS.

THE APPARENT.

DRAWN from the cock into one of the uſual glaſſes of the pump-room, it appears beautifully brilliant; and, till it is cold, abundance of bubbles bound through it. Some have ſuppoſed this to be an efferveſcence depending on an impregnation that takes place only on expoſure to atmoſpheric air. I ſhould rather imagine theſe bubbles were rarefactions of fixt air, or of its peculiar unfixable gas, perhaps of both, which ceaſe with the warmth of the water.

When a large volume however of the water is looked through, as when it is contained in a globular decanter of half a gallon, a milky hue is very perceptible; if contraſted with the ſame quantity of any good ſpring water, it is ſtill more evident.

It is warm, ſmooth, and pleaſant immediately drunk, yet having no decided taſte: after ſome minutes it leaves on the tongue a ſlight aſtringent ſenſation.

I have conſtantly found it quite devoid of odour; although ſome pretend to detect in it a calcareous ſmell, as that of lime-water.

Immersing the thermometer into it at various ſeaſons, and in various temperatures of the atmoſphere, I have never found that it was raiſed beyond 76° of Fahrenheit's ſcale. Some books improperly make its warmth 80°. With this miſtake is connected the falſe idea of the ſpring having now leſs heat than formerly. The inaccurate conſtruction, and injudicious uſe of thermometers, in earlier times, may have contributed towards the error.

Its ſpecific gravity, taken immediately from the pump, is nearly as that of diſtilled water, and always leſs than that of the beſt common cold ſprings. On ſtanding, its weight ſomewhat diminiſhes.

On expoſure in an open veſſel, even for a ſhort time, ſome corpuſcules are ſeen floating in it; and at length a ſediment appears. This at any rate evinces the neceſſity of drinking it at the ſpring, to have it in its utmoſt native purity; whether we attribute the change to a facility of decompoſition in the atmoſpheric air, or to matter received from atmoſpheric air by an inherent ready attraction peculiar to itſelf.

It freezes leſs readily than any other water; and, according to Dr. Keir, its congelation begins at the bottom of the veſſel in regular cryſtalizations; whereas that of rain water begins on the ſurface, and continues in an exact inverſe degree, cryſtalizing more irrregularly.

This water, even moderately ſecured from the exterior air, will retain its purity and ſweetneſs in all climates longer than any other known. Diſtilled water, and indeed that of all tolerably pure ſprings, will, hermetically ſealed, remain good for a century at leaſt; the *Aqua felice* the pureſt water of Rome has evinced this. It is further confirmed by the annual hogſheads, to the amount of thouſands, ſent to the Eaſt and Weſt Indies, particularly the latter, where it is uſed as a luxury in the making of ſherbet, punch, and ſuch liquors. It is ſimilarly employed in this climate. And we have it on record, in Lord Anſon's voyage, that it may be carried unſpoiled round the globe. The European conſumption of this water for the like purpoſes of indulgence, as well as medicinal, is immenſe, and ought to afford an ample income to its renters.

THE CHEMICAL.

HAVING gone through the uſual routine of chemical experiment, I do not find pretenſions to throw any new lights on the nature of this water, or to have diſcovered any new principle that will heighten its reputation. It is of no difficult analyſis. Its contents are well known; ſo are the medical properties of thoſe contents; and the variation in quantity, according to the experiments of different chemiſts, is ſo immaterial, as not to deſerve a comment.

I SHALL not here dwell on analytical minutiæ, but ſhall give one general ſurvey of the effects produced by ſome of the more material teſts on theſe waters, deducing an inference from the whole.

Respecting the inveſtigation by evaporation I ſhall be equally curſory: the relation of ſuch proceſſes are intereſting to the chemiſt only: the generality of readers will be content with the reſult, which they ſhall have in a comparative view from different operators.

TESTS.	EFFECTS.
Aſtringents.	Colour unchanged.
Fixt alkalies in a ſolid, or fluid form.	Slight efferveſcence—Milky appearance—Sediment—Brightened on ſtanding.
Volatile alkalies ſolid, or fluid.	Efferveſcence ſcarce perceptible—Deepened on ſtanding.
Foſſil, and vegetable acids.	Briſk efferveſcence.
Solution of Hydrargyrus muriatus.	No change.
Solution of ſilver in nitrous acid.	Opacity, deepening by degrees to a bluiſh purple.
Lead in nitrous acid.	The ſame.
Mercury in nitrous acid.	Yellow cloud, and precipitate.
Solution of Ceruſſa acetata.	White adheſive cloud
Tincture of ſteel, and of logwood.	No change.
Syrup of violets.	Varying green.
Solution of ſoap.	Milky — Opake — Grumous.

HENCE it is evident, that this water poſſeſſes no ferruginous principle, that it is alkaline, and contains ſome portion of vitriolic acid.

THE water being boiled, it will form a ſmooth mixture with ſoap; and its effects with acids and alkalies will not take place.

MILK boiled with it will not be decompoſed.

EVAPORATING a gallon of this water, it ſoon grew turbid; an effluvia aroſe, condenſing itſelf in a whitiſh matter about the edge of the veſſel, while a ſeeming earthy depoſit formed. When it was reduced to two or three ounces, it ſhewed ſtrong ſigns of ſalinity; and, when evaporated to dryneſs, I had an aſh-coloured reſiduum weighing 52 grains. We will compare this with the products of ſome others, who have analyzed the ſame quantity.

DR.

Dr. Guidot from one gallon of Hotwell water got a reſiduum of	50 Grains.
Dr. Wynter	36
Dr. Keir	34
Mr. Shebbeare	56
Dr. Rutty	50
Dr. Sutherland	nearly 41
Dr. Higgins	57
My own proceſs	52

The mean of all theſe products would be 47 grains; but I ſhould rather truſt to the well-known accuracy of Dr. Higgins for coming nearer the truth.

This reſiduum effervesced with acids, produced no effect with alkalies, turned ſyrup of violets green, and decrepitated a little on a hot iron.

By ſolution, filtration, evaporation, and cryſtallization, I procured 10 grains of what I ſuppoſed ſaline matter from my 52 grains of product. On examining the cryſtallization through a glaſs, it ſeemed chiefly compoſed of cubic cryſtals; there were a few long, and hexagonal. Let this be compared with what others have made out to be the relative proportions of the ſaline and earthy parts of the reſiduum.

Dr. Guidot ſays, the ſaline is to the earthy part as	1 to 4
Dr. Wynter	1 — 5
Dr. Keir	11 — 15
Dr. Shebbeare	11 — 13
Dr. Sutherland	44 — 56
Dr. Higgins ſeems to conſider it as	12 — 42
My own proceſs makes it as	10 — 42

The mean of all theſe relations would be in the ratio of 1 to 2, which however appears to me not the juſt proportion.

From my inveſtigation of this water in its fluid form, and from the reſiduum on evaporation, I would believe that it contained in various combination,

nation, but in what exact proportion my experiments were not calculated to decide, the following contents: vitriolic acid, aerial acid, a peculiar gas holding calx in moſt intimate ſolution, marine ſalt in large proportion, nitre in ſmaller proportion, and calcareous earth.

The opinions of former chemical operators, reſpecting the conſtituent principles of the Hotwell water, we will exhibit.

Dr. Guidot maintains the contents of the water to be iron, a nitro-ſulphureous ſalt, ſome limeſtone, and poſſibly alum.

Dr. Wynter attributes to the water chalk, lapis calcarius and calaminaris, alſo lixivial ſalt.

Dr. Keir gives it nitre, ſea ſalt, and an alkaline earth partly held in ſolution by a peculiar acid which chemiſtry is not able to detect.

Mr. **Shebbeare** acknowledges alum, and lime in the act of ſlaking.

Dr. **Sutherland** poſitively affirms the principles that conſtitute the water to be: the ſpirit, the pure element, a vitriolic acid, a marine acid, a neutral ſalt, and an abſorbent earth.

Dr. **Higgins**, on whoſe analyſis I confide, ſays that it contains ſelenite, much acidulous gas a part of which holds calcareous earth in ſuſpenſion, atmoſpheric air, muriated magneſia, and marine ſalt.

The Hotwell water on diſtillation reſembles any common ſpring water diſtilled, the reſiduum is the ſame as on evaporation, which will never homogeneouſly reunite with the fluid it has quitted; a proof that ſome ſubtile combining principle eſcapes, which, according to Monro, turns during the operation a luting of blue paper to a purple.

Some writers have given the effects of like experiments on other ſprings in the neighbourhood of St. Vincent's rock, to prove that they are all diſſimilar to the Hotwell Spring. This is unneceſſary, and we will take the fact on their faith; but we muſt except thoſe ſprings at the former Well-houſe, a full mile diſtant down the river: they are exactly ſimilar to, and no doubt are a part of the ſame warm current that ſupplies the preſent Hotwell. They fell into diſuſe by reaſon of their remoteneſs from any habitable ſituations, which occaſioned the eſtabliſhment of the preſent Well-houſe.

It may be aſked, whether there be any artificial combination that will ſupply the place of this water. Dr. Keir has indeed propoſed to ſaturate powdered quick-lime with vitriolic acid, and to impregnate water with it, to this end. Yet a water whoſe ſolid contents are ſo ſmall, and whoſe efficacy perhaps ſolely depends on that ſubtile tranſient principle which combines them, cannot, I ſhould imagine, be artificially imitated with any degree of ſucceſs, as the Pyrmont, Cheltenham, Tunbridge, and other waters may, whoſe component parts are ſomewhat more determined.

Dr. Alston obſerves, that lime-water, made of 5 or 600 parts water to 1 part lime, will be as ſtrong, and as medicinally efficacious, as that made of 1 part water, and 10 parts lime; for well calcined lime will impregnate 15 or 1800 times its own weight of water. And he adds, that a gallon of Briſtol water is ſaturated with calcareous contents nearly in this proportion.

Chemistry has of late years undergone ſuch philoſophic mutation and refinement, that it has taught us to believe, or at leaſt to expect, that every mineral water, if its principles are once known, can be correctly and effectually compounded. But let not the enthuſiaſm of ſcience betray us into error: principles ſeparately trifling, and inert, when combined and modified by nature, according to hidden laws which elude all art, will become active beyond the power of imitation.

NEW DISCOVERED HOT SPRING. AT CLIFTON.

It may perhaps be expected in this place, that I ſhould take ſome notice of the hot ſpring newly diſcovered on Clifton hill. I can by no means with candour, or propriety make any deciſion upon its merits at preſent. Future inveſtigation, and, above all, a ſeries of ſucceſs in the exhibition muſt determine its value.

The water, raiſed by a fire-engine, certainly now proves of great utility to the inhabitants of Cliſton, which is deficient in ſprings, for purpoſes of domeſtic œconomy. And when experience ſhall have ſufficiently confirmed its virtues, and warranted its medicinal application, it may prove both ſalutary and convenient to the invalids reſident on the hill.

The origin of this water excites attention and inquiry. The proprietor aſſures me, that the depth from the ſurface of the well on his ground to the ſource itſelf is 40 fathom, and that it is far below the ſpring of the preſent Hotwells. Now the level of the water at the former Well-houſe down the river, which riſes at three diſtinct contiguous ſources of eaſy acceſs, is much above that of the preſent Well-houſe; we may therefore reaſonably infer, that it is one and the ſame hot ſtream which runs in a gradual deſcent from the old Wells to the new-diſcovered ſpring, breaking out in its way at the preſent Wells.

Its temperature within the well, on the credit of a perſon who went down to the ſpring when it was firſt diſcovered, and immerſed two different thermometers, was 66° of Fahrenheit's ſcale. He alſo obſerved, that it broke out of the ground in a horizontal direction, due E.

Immediately as drawn out of the well, and come within our atmoſphere, it alſo raiſes the thermometer to 66°.

Its ſpecific gravity in the hydroſtatic balance is as that of the preſent Hotwells.

HEAT OF MINERAL WATERS.

Whether it be the decompoſition of martial pyrites near the earth's ſurface, or whether it be deeper ſubterranean fires that give warmth to mineral ſprings has long agitated the ſpeculations of philoſophy. I mean not to hazard a conjecture upon it; and mention it only to give ſome of my leſs informed readers the favourite principles on which the heat of waters is believed to depend.

The nucleus of this globe has been thought a central ſun, or maſs of fire, to vivify its productions from within, as our known ſun does from without. Indeed that conſtant equable heat, which characterizes mineral waters, ſeems to depend on ſome very permanent principle. Were decompoſition the cauſe; the maſs of matter to be decompoſed muſt in time be exhauſted; and did it depend on the decompoſition of pyrites, a ſulphureous, or ferruginous quality would probably belong to all warm mineral ſprings. But theſe objections admit of much argument; and on their refutation might be eſtabliſhed hypotheſes without end.

Certain it is, that in a great drought, when the generality of ſprings are exhauſted, mineral ſprings ſtill flow the ſame. In the hot ſummer of 1780, Dr. Darwin relates, that when every neighbouring ſource was dry, thoſe of Buxton and Matlock were not diminiſhed. The greater convulſions of nature alſo affect mineral ſprings chiefly. The day of the noted earthquake at Liſbon, it is reported, that our Hotwell water became ſo ſuddenly turbid it could not be drunk, and continued thus for ſome time. Theſe are proofs of a connexion deep in the womb of earth.

There is a thermometrical obſervation made relative to the common ſprings of countries, which, if it be juſt, is a curious circumſtance in natural hiſtory, and may aſſiſt in guiding us to a better knowledge of hot ſprings. It is; that wherever they are found, the mean temperature of the atmoſphere of that place, taken from the average of meaſurements of the thermometer for a ſucceſſion of years, will always be found exactly to correſpond with the temperature of ſuch ſprings.

The waters on which the obſervations are made ſhould be at ſome conſiderable depth in the ground, ſo as to be inſenſible to the action of ſudden changes of the atmoſphere: nothing is better than a common draw-well, 20 yards deep, or more. The thermometer ſhould be read off whilſt yet immerſed in the water: A bucket of water drawn up will not change its temperature ſenſibly in the time requiſite to make the obſervation; but, if this be wanting, a cup may be lowered down by a packthread, placing the thermometer within the cup, letting it remain ten minutes at the bottom of the well, then haſtily drawing it up, and inſtantly reading off the temperature. If a doubt exiſts whether the well be deep enough for the purpoſe, I contrive to have the water in it left at reſt for one or two days; then examine the temperature of the water near its ſurface, and again that from the bottom. It is ſtill better, to repeat the ſame trials under a warmer, and a colder atmoſphere: and if in all theſe circumſtances the mercury in the thermometer ſtands at the ſame degree, I am ſatisfied that the well is proper for the purpoſe, and that I have thus obtained the mean temperature of the climate.

MEDICAL THEORY OF THE OPERATION OF THE HOTWELL WATER.

MOST writers on mineral waters have endeavoured to explain their action, by applying to their contents the eſtabliſhed laws of mechanics, and the fallacious doctrines of chemiſtry: I ſay fallacious; for what faith can we place on a ſcience, which acknowledges one great actuating principle to-day, denies its exiſtence to-morrow, but poſſibly readmits it the next day? I allude to the revolution of *phlogiſton*. Let thoſe baniſh it who may: I am not inclined to diſcard this conſtant ſecret friend, who for years has prepared my daily food, and cheared me amidſt the ſeverities of winter. It may be alledged, that we have no other known principles than thoſe of mechanics, and of chemiſtry to reaſon upon, in the preſent inſtance: I agree to it: and it is certainly fair, to ſubmit whatever theories are plauſible to our judgments and opinions, but they ſhould by no means claim implicit belief: all hitherto advanced for the illuſtration of our ſubject have, in my mind, been unſatisfactory; yet this ought not to repreſs the ſpirit and ingenuity of inveſtigation. Analogy muſt guide our reaſonings upon what is unknown, and actuated by hidden laws. We can argue but from our own changeful ſcience on the operations of mineral waters, till the immutable chemiſtry of nature ſhall be underſtood, which alone can give us the true knowledge of them.

Let us examine the Hotwell water, by its ſeparate principles in a general way, and according to old-eſtabliſhed medical maxims.

Its ſubtile gas, and active aeriform impregnations adapt it to pervade the minuteſt canals of the human frame, even thoſe undiſcovered ſuppoſed paſſages in the nervous ſyſtem. Hence, it reſolves obſtructions of the moſt remote exiſtence; it dilates the capacities of the finer veſſels, overcoming their ſpaſtic conſtrictions, which conſtituted a variety of diſeaſe. The antiſeptic qualities of aerial acid have been long acknowledged.

The aqueous principle, of ſingular purity, holding no matter in ſuſpenſion to which it has a peculiar attraction, as it paſſes whatever may be permeable, is capable of diſſolving preternatural coagulations, impacted humours, or any thing of a mucilaginous nature, and of protruding them through different emunctories: for water is the natural vehicle of all nutritious mucilage, nay, it is a univerſal ſolvent.

The ſalts, by their wedge-like cryſtalizations, ſplit aſunder all viſcoſities, infinitely dividing them: and their angular forms ſtimulate the paſſages to their immediate expulſion, or a previous abſorption. By ſuch gentle excitement, they alſo quicken a ſluggiſh circulation, or remove whatever impedes it. We know the efficacy of vitriolic acid, of which ſome of the ſalts are compoſed, in reſtraining colliquative perſpirations or hæmorrhages, and acting as a tonic. The antiſeptic power of marine acid, which compoſes others, we alſo know, and how capable it is of preventing the action of purulency.

The terrene matter corrects all acidities of the primæ viæ; it abſorbs all acrimonious humours of the habit; prevents their accumulation, and eroſion of the blood-veſſels, ſo as to create hæmorrhage; in which their native ſtypticity has alſo its effect: it involves the ſaline particles, enabling them to paſs through the larger tubes of the body without effect, till they arrive at the ſmaller canals, where this terrene matter, unable from its groſsneſs to paſs, quits them; and the ſalts then act with their deſtined efficacy.

From ſuch premiſes are deducible the utility of our water in phthiſis. It prevents, or even reſolves thoſe ſcrofulous obſtructions of the infinitely minute glands of the mucous membrane of the lungs, which poſſibly conſtitute tubercles. It corrects the ſeptic matter of their ſuppurations, and carries it innoxious out of the conſtitution.

It prevents the hæmorrhage, when the ſanguiferous ſyſtem of the lungs is eroded from matter, or when ruptured from an increaſe of circulation there determined. And laſtly it reſtrains the night ſweats, and mitigates the fever.

We may ſimilarly infer its efficacy in diabetes. It paſſes ſo readily through the minuteſt outlets of our frame, as to divert thither the preternatural ſecretion of the kidneys. Its earth abſorbs in part the redundant fluid, and, by an union with vitriolic acid, ſtrengthens the relaxed ſecretory organ, to which it has a particular determination. But chiefly, a ſpecific power it ſeems to poſſeſs allays thirſt, the moſt tormenting of all its ſymptoms.

These doctrines well correſpond at leaſt with Dr. Randolph's ſcale of hectic fever, at the head of which appear, as primary cauſes, increaſed circulation, and relaxed glands.

Dr. Fothergill ſeems to lay a ſtreſs on dilution, as a principle by which this water acts;

copious draughts he conſiders of material uſe in waſhing off impurities, allaying heat, and ſupplying the waſte of juices exhauſted by copious perſpiration. This theory of dilution is favoured by many ingenious phyſicians of the preſent day, with whom I have converſed on the ſubject of our water.

Thus may we be permitted to reaſon; and let us even allow validity to our hypotheſes; till time, and human induſtry ſhall have diſcovered the more hidden ſprings of action.

APPLICATION TO DISEASES.

The Briſtol, like every other mineral water, has its too zealous advocates, who extol it as a ſpecific in complaints, to which, in my opinion, it is no way adapted. I ſhall mention only two diſeaſes, in which it is of approved, indubitable efficacy; *Phthiſis*, and *Diabetes*. Yet my reader muſt not thence be led to a belief, that it is in thoſe only I eſteem it beneficial; it certainly has its utility in many others which are chronical, particularly all thoſe that are connected with hectic fever, either as a cauſe, or a concomitant ſymptom.

PHTHISIS.

It would be unneceſſary, and perhaps improper, to enter into the doctrines and dangers of phthiſis with the miſcellaneous valetudinarians, and unlearned in medicine, into whoſe hands my book may come; for them I write, not for the phyſician; and to ſuch I ought only to point out how impending ill may be averted, or incipient miſchief reſtrained, and where hope is to be expected from the exhibition of theſe waters. For this end I ſhall confine myſelf no further to the theory of the diſeaſe, than to explain thoſe cauſes which may anſwer my intention.

I AM much inclined to favour the opinion of Dr. Radcliffe, as reported by Mead, that conſumptions in this, and other cold countries, are moſtly of ſtrumous origin. Phthiſis ſeems peculiar to inſular ſituations, conſequently to our country; and I have known perſons obtain relief, merely by croſſing over to the neareſt continental ſituation, as Calais, Havre, or Oſtend. Yet in certain localities on the continent the diſeaſe prevails, and in a ſingular way. At Hières, in the ſouth of France, where many of our pulmonary invalids were uſed to emigrate, I aſked a phyſician of the place what were the endemic diſeaſes? he ſaid conſumptions, and intermittent fevers. But this is accounted for, when we underſtand, that a neighbouring ſpot, which in the winter forms a beautiful lake, is in the ſummer a putrid exhaling marſh.

THE chief prediſpoſing cauſes of phthiſis are: an hereditary diſpoſition; the age of between twenty and thirty, particularly in females; a tall ſtature; ſlender neck; flat cheſt; a clear red and white complexion; alſo, hilarity of temper; and quick parts.

To whatever perſons theſe cauſes may apply, let them have a jealous regard to the more immediate exciting cauſes, which principally are: indulgence in exceſs of paſſions, whether ſuch as repreſs, or as exhilarate; too ſtrict attention to any ſedentary employ; late hours; ſuppreſt evacuations; whether natural, as the menſtrual, perſpirable, hæmorrhoidal; or artificial, as thoſe of iſſues, and ſimilar drains; introverted matter, whether eruptive, ulcerous, or other; breathing a tainted air, either by living within the influence of ſome unwholeſome combuſtion, or in ſome impure locality; ſudden tranſitions from heat to cold, in point of atmoſphere or apparel, this includes a want of attention to warm feet, and cloathing adapted to the ſeaſon, which, if wet, muſt never be ſuffered to dry on the body; damp beds; expoſure to the night air; a humid atmoſphere; a parching wind: but of all cauſes leaſt attended to, moſt to be dreaded, and above every other miſchievous, is the common catarrhal cold, which perpetually occurs in our climate during the winter; it conſtitutes the firſt ſtage of maladies innumerable.

As ſex, youth, and beauty, are in themſelves material prediſpoſing cauſes to the diſeaſe in queſtion; ſo I would particularly direct the attention of my female readers to the circumſtances I have juſt enumerated.

The cure of incipient phthiſis may ſometimes be effected; that of the confirmed muſt be deſpaired of, till further ingenuity ſhall make diſcoveries now unthought of. Onr Hotwell water materially mitigates the moſt diſtreſſing of its ſymptoms, the hectic; and frequency of mitigation we know will ſometimes accompliſh a cure. Nor let us doubt its utility, when a water ſo devoid of principle as that of Malvern is deemed ſerviceable in conſumption, on the reſpectable authority of the late ingenious Dr. Wall, of Worceſter: he relates ſome well authenticated caſes of its virtues. And here I cannot but expreſs my regret, at ſeeing patients ſo often viſit our waters in that late period of the diſeaſe, when no remedy, no human ſkill can avail; when miſchief is ſo thoroughly confirmed, that even palliation cannot be hoped. Where tubercles are only incipient, not ſuppurated, advantage may accrue from our Hot-ſpring.

But the water alone will not ſuffice; the collateral aid of remedies is almoſt always requiſite, to obviate ſymptoms as they ariſe, or to produce ſome general change in the animal œconomy. Bliſters, iſſues, and ſetons are powerful aſſiſtants; ſo is blood-letting, although it is too frequently abuſed. Opium, and certain neutral ſalts, particularly of the refrigerant kind, do undoubted good. Hemlock, mercury, and the balſamic gums are of dubious efficacy. The ſquill, though condemned by ſo competent a judge as Fothergill, certainly has its uſe. Bark, and ſteel require more of our conſideration in this complaint than, in my opinion, they have yet had; but their exhibition requires ſkill: the one, under due management, may influence, ſo as to mitigate, the exacerbation of waſting hectic;* the other may have its effect on early tubercles. Aſſes' milk is often ſerviceable: goats' milk is likewiſe eſteemed ſo: cows milk, taken ſo as to conſtitute what is called a milk diet, I have my doubts upon. And riding on horſeback, ſo as not to fatigue, is of ſovereign uſe; Sydenham aſſerts, that it is as unfailing in conſumption, when curable, as Peruvian bark is in an intermittent.

A CERTAIN *Syrup* having of late obtained ſo much fame in the cure of this diſeaſe, it may ſeem to require mention. Many whoſe caſes were hopeleſs have, through inclination, or the perſuaſion of friends, been induced to try that harmleſs farrago of unmeaning herbs; I never oppoſed its trial; and have always found it equally innoxious, and ineffectual: but I have conſtantly objected to the rude preparatory purgative, which the inventor adviſes ſhould precede its uſe; to the delicate pulmonic patient I have judged it highly prejudicial.

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* WHERE a light and manageable preparation of the *Cortex*, ſeems indicated, in delicate caſes, I have exhibited with ſucceſs that newly-invented by Godfrey, under the name of *Eſſential Salt of Bark*. It obviates the uſual inconveniences of this remedy. The doſe is from four to ten grains; and its beſt vehicle is the *Miſtura ſalinoſa*, or *Lac amygdalæ*.

How far conſumption is catching agitates the mind of many a friend attendant on the unfortunate. As I do not conſider the matter of ſuppurated lungs as a ſpecific contagion, ſo I think it cannot poſitively be communicated. Whether the air of a room be contaminated with the purulent effluvia of pulmonic ulceration, or of a ſuppurating ſore of any other part of the body, it will be equally injurious to the health of attendants; and as ſuch attendants are moſt often relatives of the ſick, and poſſibly prediſpoſed by inheritance to the ſame diſeaſe, ſo they more readily than others may have their lungs affected by the effluvia of matter. Perhaps alſo matter breathed from the lungs may be more largely and intimately diffuſed through the air, than if it exhaled from an open ulcer, and was ſimply abſorbed; hence it affects with greater facility. Were the matter of conſumption a ſpecific poiſon *ſui generis*, a mortality muſt frequently prevail among our Hotwell nurſes.

THE ſpecies of phthiſis in which the water appears more particularly uſeful are thoſe ariſing from hæmoptoe, or from tubercles; and they are by far the greater number which ſeek relief from the Hotwell ſpring. Females are more particularly diſpoſed to the phthiſis hæmoptoica, from circumſtances peculiar to their œconomy: with them there is leſs to be dreaded; nature, or gentle emmenagogues often effect a cure; and the Hotwell water, reſtraining for a time the momentum of circulation, allows the mouths of the ruptured veſſels to collapſe and heal without further injury.*

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* In this ſpecies of phthiſis I have given the *Lichen Iſlandicus* with ſingular advantage. It is ſubaſtringent, and mildly tonic; it is mucilaginous, and nutritive. It appears to unite the qualities of many medicines commonly employed in the diſeaſe, as infuſion of roſes, gum arabic, and others.

In the arthritic, ſyphilitic, aſthmatic, and ſcorbutic phthiſes it has little effect; to the laſt of theſe bark, and the expreſſed juice of the *ſium* I have found ſomewhat ſerviceable; although in every phthiſical caſe, as far as hectic fever is concerned, the Briſtol water has its uſe as a palliative. In the true maraſmus it is of no avail.

DIABETES.

I ſhall ſay the leſs on diabetes, as its doctrine is profeſſedly not underſtood. The ancients ſcarce knew the diſorder. From the time of Aretæus, who firſt marked it as a diſtinct diſeaſe, it has been attributed to an extreme want of tone, and perhaps an irritability in the ſecretory organ, ariſing from an undue exertion of its functions; but all writers allow ſome more remote primary origin, depending on conſtitution, that we are totally unacquainted with.

There are two theories, whoſe novelty and ſingularity render them deſerving of mention, and the latter I am much inclined to favour.

The firſt is Dr. Mead's. He calls diabetes a diſeaſe of the liver; owing to a decompoſition of thoſe ſalts of the bile, which ought to aſſimilate its oleaginous with its aqueous parts: by drinking largely they are diſſolved, carried to the kidneys the great emunctories of ingeſted fluids, ſtimulate them to increaſed action, and produce the complaint; while the oleaginous parts are depoſited in the liver, which is in conſequence diſeaſed. The diſſection of diabetical perſons, who are generally drunkards, and have diſeaſed livers, may in ſome degree have given riſe to this doctrine.

The ſecond is that of the late Mr. Charles Darwin; who imagines diabetes to proceed from a retrograde action of certain lymphatics, which abſorb and introvert the chyle towards the urinary paſſages, depriving the body of its due nurture. This to me ſo thoroughly accounts for the thirſt, dry ſkin, emaciation, and urine loaded with saccharine matter oftentimes to ſuch a degree that a maſs of ſugar has been formed by evaporating it, in ſhort for every other ſymptom of the diſeaſe;

that I am almoſt ſatisfied with the merit of the theory: but this is not a place to aſſert its pretenſions, or refute the objections made to it.

I will proceed to the cauſes of diabetes. "Evoe, attend ye bacchanalians!" Among the chief is an exceſſive indulgence in ſtrong liquors, but principally thoſe of a diuretic quality, as hock, gin, cyder, cool-tankard, and punch; more eſpecially if drunk when the body is heated, when cold ſeaſons diminiſh the perſpirable matter, and when age produces atony. An improper uſe of mineral waters, particularly the Knareſborough, is ſaid to have brought it on; ſo has opium, copaiva balſam, and cantharides unadviſedly taken by the licentious. In ſhort all diuretics, whether dietetic, or medicinal, largely employed, have occaſioned it in prediſpoſed perſons.

Sudden tranſitions from heat to cold, hard exerciſe, immoderate venery, lumbar ſtrains, ſudden copious evacuations, intermittent fever, inanition, cachexy, ſome of the depreſſing paſſions; and the bite of a viper are accounted cauſes.

I have often remarked, that perſons afflicted with diabetes are for the moſt part fair, florid, of a temperament apparently ſanguineous, and not infrequently robuſt.

The cure of diabetes is always tedious, often uncertain; Dr. Cullen ſpeaks doubtingly of it; in Scotland at leaſt he never knew it effected. May not this be owing to the unfavourable circumſtance of cold in that climate? The fatality of this complaint is poſſibly owing to our early neglect of it. A ſudden flow of urine happens on ſuch frequent occaſions, that we are little apt to notice its degenerating into a vice, and conſtituting diſeaſe, till the habit becomes troubleſome.

Bark; lime-water; cantharides; alum-whey; antimonial diaphoretics; with rhubarb and ipecacuanha, ſometimes conjoined, ſometimes ſeparate; all anſwering their ſeveral intentions, are what I have found moſt efficacious in point of medicine.

Of concomitant aids the principal are: dry frictions; a nutritive incraſſating diet; moderate exerciſe on horſeback; but above all tepid bathing, particularly in a ſea-bath: this laſt experience has induced me to lay ſome ſtreſs upon. Dr. Guidot, mentioning the cure of diabetes by Briſtol water, ſeemed aware of its value; an idea which Dr. Randolph, quoting him, rather ridicules.

Bristol water, which, independent of its other virtues, I conſider as a light lime-water, has of itſelf often cured diabetes; inſomuch that it has been long eſteemed its ſpecific; yet in this inſtance the concomitant aids were not neglected. But medicine is moſt often neceſſary to the cure: I have known the water alone drunk during four months, without anſwering any good end, till aſſiſted by a very little medicine, when it has immediately proved efficacious, and eventually cured.

The uſe of the water in gleets, diarrhæas, and other fluxus, I have reaſon to doubt; and eſteem it no otherwiſe uſeful in nephritic complaints, than as a fluid that paſſes very readily: yet will I not preſume formally to refute what its earlieſt and lateſt writers have conſtantly affirmed.

EXHIBITION, APPROPRIATE REGIMEN, AND CONDUCT.

The Exhibition of this water does not require much previous preparation, yet a mild aperient is generally adviſeable: by cleanſing the *primæ viæ*, it prepares them for its more efficacious action; prevents any diſagreement which would occaſion unmerited diſguſt; and it removes that increaſe of feveriſh heat, which travelling might occaſion in the invalid coming from afar, who ought not to begin the courſe till two days at ſooneſt after arriving at the Wells.

The Time of drinking the water is uſually before breakfaſt, and between breakfaſt and dinner; but neither meal ſhould occur within an hour of taking it. A third time in the day is ſeldom adviſed. The morning draught is more particularly ſalutary, eſpecially in ſummer, as the volatile principles of all mineral waters eſcape ſooner in a warm than in a cold atmoſphere; and ſome evaporation will always take place, even during the ſhort ſpace of time in which the glaſs is filled, brought to the lips, and drunk.

TWICE in the month, at new and full moon, ſome irregularity muſt occur in the time of taking the waters, by reaſon of the ſpring tides, which, riſing higher than the ordinary tides, and coming at that time only on a level with ſome undiſcoverable flaw in the incloſure of the Hot-ſource, enter it, and for awhile render it brackiſh; but, by the reflux of the tide, and much pumping, the ſource reſumes its purity.

An account of the progreſs of change in the water, during the ſprings, may prove acceptable.

About three days upon an average previous to the new and full moon, the water is diſturbed, and unfit to drink; at what particular hour this happens is uncertain; in about four hours it becomes, with the aſſiſtance of pumping, pure again; this diſturbance happens from 20 to 30 minutes later every day, till 3 days after the new and full moon; when it ceaſes with the ſpring or high tides, which have laſted, as they generally do, ſeven days.

In this place, I might with propriety mention the good effects that would reſult from keeping the pump at all times going, whether the water be drinkable or not: the friction would preſerve the cylinder of the pump in a conſtant warm ſtate, and render the fluid of an equal temperature; a circumſtance pleaſing to the invalid, and creditable to the water.

The Quantity of water to be drunk is in general ſo much as will not cauſe any diſagreeable diſtention of the ſtomach; therefore the tone of that organ, the ſtrength, age, and temperature of the patient muſt regulate this. From four ounces to half a pint is the uſual draught. There are three ſized glaſſes at the pump-room; the largeſt contains half a pint, the ſecond one third of a pint, and the ſmalleſt a quarter of a pint. Two glaſſes are generally taken at a time, twenty or thirty minutes being interpoſed between each. It is always beſt to begin with a quantity of water, rather under what we imagine may agree; a gradual increaſe of the doſe has its advantages; and, where, from weakneſs and irritability of the alimentary canal, diſagreement is ſuſpected, it is beſt to take only one glaſs. Perſons much debilitated, and under the age of fourteen, ſhould always begin with the ſmalleſt ſized glaſs; adults with the ſecond ſized; and even the moſt robuſt of thoſe, who enter on a courſe of the water, had better not take the full-ſized glaſs till the ſecond or third day.

Drinking it at the Fountain-head I would ſtrongly urge in the uſe of this water; taken from thence I conceive it no longer to poſſeſs any medicinal power; I have had occaſion to lay a ſtreſs upon this more than once in the preceding pages, aſſigning my reaſons. Many perſons, becauſe the Bath water of more determined impregnation, being carried warm to ſome diſtance from the pump, will yet retain much of its virtue, have imagined that the Briſtol water might remain efficacious in the ſame manner: but the contrary, I believe, is the caſe. Drunk at the table in any way as a beverage it is an agreeable luxury, but by no means a medicine.

The Seaſon for the uſe of the water is in the latter end of ſpring, and throughout the ſummer; or, from the middle of May till the latter end of September; it might however be drunk as early as

April, and as late as October; but this muſt depend on the temperature, and earlier or later ſetting in of the ſpring, as well as on the conſtitution of the ſummer. Not but the water, like that of all other mineral ſprings, is equally good in every ſeaſon, with reſpect to its impregnaons; but, in the finer months, the concomitant advantages of air and exerciſe are more attainable.

THE ſea coaſt, particularly the Devonſhire, is reſorted to in the autumn by our viſitants of all denominations. Valetudinarians, who have derived benefit from this place, are advantageouſly prepared for the more tonic remedy of a perfect ſea-air. To the idle, or the ſpeculative, the ſea coaſt, particularly the weſtern, affords from its numerous towns, each on the mouth of ſome river, a charming and intereſting variety.

The immediate ſenſible Effects that are perceived on firſt drinking the Briſtol water require mention; leſt the uninformed ſhould too haſtily conclude, that it diſagrees, and unadviſedly deprive themſelves of a valuable remedy they have perhaps travelled miles to obtain. The effects vary according to different idioſyncraſies, or peculiarities of conſtitution; the moſt general however are; drowſineſs, vertigo, and ſometimes an obtuſe pain in the head: theſe may be accounted for on the principle by which Dr. Wall accounts for the ſame effects in the Malvern waters, namely a temporary plethora, occaſioned by the ready paſſage of the water into the ſyſtem; ſome gentle evacuants, with now and then antiſpaſmodics, relieve. Oftentimes diarrhæa, ſometimes conſtipation, are produced, which a few grains of ipecacuanha or of rhubarb remedy; but many are in that caſe obliged to take an abſorbent aromatic powder in each doſe of the water. Dejection, languor, and an imagined increaſed debility are alſo effects: ſtimulating cordials obviate them.

Invalids who drink mineral waters, depending upon, and guided only by their own judgments, may make trial of this with greater impunity than of any other mineral water whatever. But let not its innocence lead us to conſider it as inefficacious, and nugatory. Things trifling in themſelves, under peculiar circumſtances, become active, and material. And, if this water, drunk in large quantity by any one of rude health, produces, as it often will do, ſenſible effects; ought we not reaſonably to conclude, that taken in ſmall quantity by perſons of extreme ſuſceptibility, and of delicate health, it may become a powerful agent?

A fair Trial is accounted given to the Hotwell water, when it has been continued ſix weeks; if in that time it proves ſerviceable, it may be continued for months with advantage. Great good effects have been perceived from it, long after the courſe was over, during which only ſmall benefit ſeemed to accrue.

Diet, and Regimen of any particular kind cannot be attached to a courſe of this water; they muſt be conformable to the diſeaſe preſent. The diabetic require an incraſſating diet, the pulmonic one that is cooling and abſtemious. Phthiſis being the moſt frequent Hotwell caſe, in which a ſtreſs is laid on dietetic aid, and as it coincides with that diet requiſite in all caſes connected with increaſe of circulation; ſo I ſhall conſider a diet, and regimen light, ſoft, mildly nutritive, and bordering on the antiphlogiſtic, as in general appropriate to a courſe of the Briſtol water.

Vegetables ſhould conſtitute the principle aliment, avoiding ſuch as in peculiar conſtitutions will occaſion peculiar inconveniencies: the aceſcent fruits are in general good, as are all thoſe denominated horary or ſummer fruits.

When animal food may be allowed, which ſhould always be with caution and ſparingly; I would confine it to mutton, poultry, rabbit, and game of any kind: theſe are certainly of the moſt eaſy digeſtion. Fiſh is injudiciouſly, though commonly eſteemed innocent: every perſon in health, who makes a meal on fiſh alone, may judge of its heating quality from the thirſt it occaſions: of ſea-fiſh the whiting is leaſt harmful; of freſh water-fiſh the flounder, as being the moſt readily ſoluble in the ſtomach: ſhell-fiſh may almoſt always be admitted; and turtle ſimply dreſt without its uſual high ſeaſoning is even eſteemed of ſervice: the French phyſicians pretend to cure conſumption with the ſoup of land-tortoiſe only. Milk in general is ill borne by the ſtomachs of pulmonic perſons: aſſes' milk is oftentimes found too rich, unleſs diluted with Briſtol water; yet I would always employ it once in the day, and that early. All vinous liquors, or ſuch as have undergone fermentation, ſhould be abſtained from; but here exceptions often occur: in debilitated habits I have known the diurnal exacerbations of hectic mitigated by a regular glaſs of port wine diluted taken during the intermiſſions, in the ſame manner as by bark. Riding with warm clothing according to the ſeaſon, particularly of the lower extremities, and of the cheſt, demand ſtrict attention.

Still better to explain how far the water, exerciſe, diet, and medicine, may concur in forming one general ſcheme of regimen; I ſhall point out the daily diſtribution of hours proper to be obſerved by an invalid, whom we will ſuppoſe in no deſperate ſituation, and capable of profiting by every advantage conducive to recovery: we will alſo ſuppoſe that, ſome alterative plan being purſued, medicine is exhibited twice a day at medical hours: on going to reſt medicine is almoſt always neceſſary: and we will place our patient in the uſual Hotwell ſeaſon. This ſcheme may be called

THE INVALID'S DAY.

At ſix in the morning take aſſes' milk, diluted, or otherwiſe—Reſt about an hour after it in bed: ſhould perſpiration enſue, which is frequently the caſe, reſt rather upon the bed, lightly clad—Riſe at ſeven, or earlier—Be at the Wells by half paſt ſeven—there take the firſt glaſs of water; and, having walked in the open air, if weather permits,

mits, otherwiſe under the colonade, for twenty or thirty minutes, take the ſecond glaſs—Ride on horſeback, or in a carriage from eight to nine—Breakfaſt, and the private avocations of the morning will engage till—twelve, when a cuſtomary medicine is to be taken—At one go to the waters, and drink two glaſſes in the ſame way as in the morning—From half paſt one ride on the downs, or elſewhere till—four. Dinner. Remain quiet after it, or perhaps repoſe on a couch till—ſix. Repeat the uſual medicine—Half hour after ſix. Tea, or ſuch habitual beverage—At ſeven walk; or, if debility forbids, ride—At eight, or ſoon after, be returned home—At nine, or ſoon after. Supper.—At eleven take the night medicine, and retire to reſt.

ADVANTAGES OF SITUATION, RECREATIONS, ACCOMMODATIONS.

To no one ſpot in our kingdom can the valetudinarian fly, or can the phyſician conſign his patient, for a re-eſtabliſhment of health impaired by diſeaſe, where the purpoſe is more attainable, than in the neighbourhood of St. Vincent's rock. Beſides the virtues of its ſpring, it affords many conducive recreations: the rides over thoſe downs extending from the ſummits of the rocks on either ſide of the Avon, particularly the Glouceſterſhire, are ſingularly beautiful. The ſite of Kingſweſton is unequalled. The nature of the air breathed on thoſe heights has been ſpoken of. Aſhton, on the Somerſetſhire ſide, affords a medicinal luxury highly grateful to the hectical invalid: the village, three miles in length, is one continued bed of ſtrawberries. The upland habitations on Clifton hill, during the ſummer, are delightful; and the ſheltered ſituation of thoſe round the Hotwells below afford a warm reſidence in winter, equal at leaſt to the boaſted coaſt of Devonſhire; indeed it has one advantage over it, being free from its damp airs, and mizzling rains, always prejudicial to the pulmonic. Hence Briſtol Wells have theſe few years paſt become a faſhionable winter reſort.

The amuſements of the place are numerous, and afford choice to the healthy. Balls and breakfaſts are at the Wells; concerts, and plays at Briſtol: nor are wanting the more ſocial meetings, where cards and converſation prevail: theſe are all conducted with that decorous regularity in reſpect to hours, which is ſo material to thoſe invalids who venture to indulge in evening diverſions: ſuch regularity is a circumſtance we would ever recommend to the attention of the perſon preſiding over our amuſements. And in this place let me be allowed to lament, that the female invalids at the Hotwells, who are for the moſt part at that period of life when public entertainments have their peculiar reliſh, err in no one inſtance ſo mnch, as in the indulgence of dancing; an exerciſe moſt ſalutary to lungs that are ſound, but as injurious to thoſe that are unſound.

The ſummer ſtranger will find on Clifton hill abundance of comfortable dwellings; and a well-eſtabliſhed extenſive hotel, that of York houſe. There are ſome good lodging-houſes at the Wells; but we have to regret, that there are not yet a ſufficient number for the now numerous winter viſitants: this want is however ſupplied by the accommodations which three excellent hotels furniſh, that of the New inn; of the Long rooms; and of Glouceſter houſe; at which are found apartments commodious, and even elegant.

THE END.

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